

Government Agencies Technology Exchange in Manufacturing (GATE-M) MEETING SUMMARY

**August 20, 2002
at the National Institute of Standards and Technology (NIST)
Gaithersburg, Maryland**

Introductory Remarks

Summary

- Attendees:
 - Steve Linder, DOD
 - Hank Kenchington, DOE EERE
 - Roger Hayes, DOE NNSA
 - John Vickers, NASA (via teleconference)
 - Dale Hall, NIST (Panel Chair)
 - Dave Stieren, NIST
- Steve Linder from the Office of Naval Research was introduced to the Panel as the DOD representative, filling in for Dan Cundiff. Steve is the Director of the Manufacturing Technology Division of the Office of Naval Research.
- It was announced that NSF would not be able to participate, but that George Hazelrigg had provided input indicating that NSF should be able to support any prioritization decisions the Panel would make during the meeting.

Actions

- None identified.

Agency Priority Items

Summary

- The first portion of the discussion focused on each agency's input to how GATE-M should prioritize issues to address jointly. These issues were considered within the context of the grouped summaries of the manufacturing-related issues that were previously submitted by the GATE-M agencies.
 - The document created by NIST and distributed to the Panel regarding Potential GATE-M Issue Prioritization was used as the discussion guide, and the grouped issue summaries were discussed in the order presented on this document.
 - For each issue in the document, each agency weighed in on whether the issue was one that could or should be jointly addressed by GATE-M.
 - The purpose of the discussion was twofold: (1) to identify a set of issues that GATE-M would address jointly, and (2) to define what it should mean to address these issues jointly, and how GATE-M should go about doing this.
- The following issues were discussed by the Panel:

- Homeland Security
- Nano / Micro-Scale Systems and Technologies
- Environmentally Focused Technologies and Processes
- Intelligence in Manufacturing
- Supply Chain / Systems Integration and Interoperability
- Manufacturing Quality and Reliability (Measurement and Testing)
- Manufacturing Education
- Manufacturing Process Development — Metals and Composites
- Each agency contributed valuable insight and perspective to the discussion of each issue, and many valid points were raised. During discussion it became clear once again — as it had during previous GATE-M Panel discussions — that the various agencies are quite diverse in terms of their missions. As such, the agencies view issues quite differently based upon their agency mission perspective. For example, several of the agencies have a product mission focus, while others have missions that are more infrastructural in nature.
- Mission differences notwithstanding, the Panel came to closure and consensus rather quickly on which items would be good candidates for GATE-M to address jointly.

The Panel's two selections were:

1. Intelligence in Manufacturing (near-term)
2. Nano / Micro-Scale Systems and Technologies (longer term)

- These two issues represent areas where there is good commonality of interest across all the GATE-M agencies, and this commonality was a primary parameter used to select these issues.
- The notion of prioritization was not pursued further during discussion. The Panel quickly decided that identifying commonality of interest across the agencies was more important than attempting to achieve consensus prioritization.
- All issues discussed shall remain on the table for consideration at a future time, as each of these issues is based on the agencies' manufacturing-related priorities. The meeting's detailed discussion points are not provided in this meeting summary for all the issues, but these points have been noted and can be produced if necessary.
- For Intelligence in Manufacturing, a few notable points of discussion are listed below.
 - This represents an enabling, cross-cutting technology area that is potentially transformative in terms of how manufacturing might be conducted in the future.
 - There could be a big potential impact on supply chain cost, quality, and reliability.
 - Many agencies have programs that directly address this area or are directly relevant.
 - There is a lot of fertile ground here, and the manufacturing community is just beginning to tap the capabilities for manufacturing that are afforded by intelligent, open architecture control.
 - There could be significant opportunities for product mission-oriented agencies to apply technology developed elsewhere (i.e., at another GATE-M agency) to specific manufacturing problems in other domains.
- For Nano / Micro-Scale Systems and Technologies, a few notable points of discussion are listed below.

- While this is not a highly mature area, there is good opportunity here.
- This represents an area with many manufacturing and systems issues, where GATE-M could likely find several ways to pull the missions of the various agencies together.
- A number of electrical and mechanical application areas exist or are being investigated, and assembly areas and measuring techniques and tools were highlighted as fertile topics.
- The need to not stray into science, but to stay focused on manufacturing technology, was stressed.
- The need to coordinate the GATE-M activities in this area with the National Nanotechnology Initiative (NNI) was also stressed.
- The second portion of the discussion focused on what it means for GATE-M to jointly address these issues and how GATE-M should go about doing this.
 - The Panel agreed that there would be two primary types of activities that will be pursued: (1) information exchange among the agencies, and (2) advocacy by the Panel in the particular topical areas.
 - With respect to information exchange, the Panel listed the following activities as items that should happen for the issues identified:
 - GATE-M should conduct interagency program reviews in the specific areas for the purpose of communicating to one another what each agency is currently conducting or is interested in pursuing in the particular area and to explore opportunities for collaboration.
 - GATE-M can jointly sponsor workshops to address the specific areas.
 - GATE-M can promote and sponsor the development of roadmaps in the specific technical areas.
 - GATE-M can do multi-agency brainstorming where agencies could potentially serve as technical consultants to other GATE-M agencies to address areas of specific interest.
 - The constituent bases of each agency can be merged with those of the other agencies to facilitate new opportunities and application areas for the agencies.
 - With respect to Panel advocacy, the Panel listed the following activities as items that should happen for the issues identified:
 - GATE-M should issue joint white papers or position papers that represent an interagency advocacy position with respect to the particular issue.
 - GATE-M should consider how its advocacy for a particular issue could provide the foundation or framework for a national initiative in manufacturing and should actively pursue communicating GATE-M positions to other, national-level entities pursuing national manufacturing initiatives and interagency activities. These entities might include the White House Office of Science and Technology Policy, the government-wide interagency National Nanotechnology Initiative, or the Manufacturing Board of the National Research Council (NRC).
 - In an innovative approach, GATE-M could issue a joint challenge, where sponsorship would be obtained to promote the issuance of some type of

- reward to the research community for tackling and solving a particularly difficult technical challenge that would be defined by GATE-M.
 - The GATE-M agencies could pursue the potential development of joint Small Business Innovative Research topics, and/or awards if appropriate.
 - The GATE-M agencies could jointly support studies to address technical issues.
- There was also discussion during this portion of the meeting about a stretch goal for GATE-M. This stretch goal would be for GATE-M to reach a point of maturity in the near term future where GATE-M could serve as the voice of federal manufacturing.

Actions

- NIST will, as soon as possible, capture in a report the process that GATE-M has followed from its inception to its current status of having identified issues to jointly address. The report will be published as soon as possible in an appropriate medium.
- NIST will, as soon as possible, begin the process of scheduling and coordinating an interagency program review addressing some combination of Intelligence in Manufacturing and Nano / Micro-Scale Systems and Technologies.
 - Each agency should begin to consider potential target dates for the review(s).

Charter Update

Summary

- As of the meeting date, the following agencies have signed the charter: DOC/NIST, DOD, DOE NNSA, and NASA.
- The charter is currently at NSF, where it has been approved for signature and is awaiting the availability of the signatory to complete the process.
- After the NSF signature is complete, the charter will go to DOE EERE, which has completed its reorganization and indicated that it has pre-approved the signature process.
- In conjunction with the final actions of the charter signature process, GATE-M will issue a joint press release announcing the completion of the GATE-M charter signatures and promoting the GATE-M activity. This joint press release will be initiated by NIST, who will coordinate its development and release with each agency. It is likely that coordination here will occur in conjunction with the public and business affairs entities of the various agencies.

Actions

- Upon its signature completion, NSF will forward the charter package to DOE EERE for the final agency signature.
- Upon completion of its signature, DOE EERE will return the charter package to NIST, who will do the following upon completion of all signatures:
 1. Distribute an original copy of the fully signed charter to each agency

2. Initiate with each agency the development and execution of a joint press release announcing the GATE-M charter and promoting the GATE-M activity.

Update on the NRC Manufacturing Forum

Summary

- NIST communicated again that it is contracting with the NRC to conduct a National Manufacturing Forum in the spring of 2003. The NRC should be under contract by the beginning of September.
- The current target dates for the Forum are March 27-28, with the event planned to be held in Washington, D.C., at the National Academies headquarters.
- The NRC is in the process of finalizing the steering committee for the Forum, and GATE-M suggestions are still welcome for persons to participate on the steering committee. GATE-M input is also welcome regarding the actual Forum in terms of potential speakers and topics.

Actions

- Each GATE-M agency is invited to provide suggestions for persons to participate on the Forum steering committee and/or potential speakers and topics for the Forum. GATE-M members can do this either by contacting the NRC directly, or by communicating to NIST, who will pass the information along to the NRC. Toni Marechaux is the NRC lead for this, and she can be reached by e-mail at tmarecha@nas.edu or by phone at 202-334-3505.

Other Business

Summary

- The GATE-M Panel participated in the SAE Aerospace Manufacturing Technology Conference in Hartford, CT, in June. There was a GATE-M technical session that included presentations on the manufacturing programs and activities of the DOD by Dan Cundiff, of the NASA Marshall Space Flight Center by John Vickers, and of the NIST Manufacturing Engineering Laboratory by Dave Stieren. NIST also provided an overview presentation of the GATE-M Panel.
- NIST also provided a GATE-M briefing and had an interaction with the Executive Committee of the Industry Affordability Task Group of the National Center for Advanced Technologies in Washington, D.C. in July

Actions

- NIST will circulate to the Panel as soon as possible the briefing it uses to present GATE-M at various venues.